

Remarks

The Office Action notes that claims 1-20 are pending in the Application. Of these, claims 17-20 have been withdrawn subject to a restriction requirement. By this Response, claims 1, 3, 6, and 8 have been amended. Support for the claim amendments can be found throughout the originally filed specification and claims and drawings. Therefore, no new matter has been added. Claims 1-20 remain pending with claims 1-16 under consideration.

Drawings

The drawings stand objected to because the reference number 140 is used to designate multiple items. In response, the Applicants have amended Paragraph 39 in the Specification to specify that substraight inlet/outlet is item 150 rather than 140.

Specification

The disclosure stands objected to because “AMD” should be “ALD” in Paragraph 55 and “Substrata” should be “Substraight” in Paragraph 39 of the specifications. The Applicants have amended the specification to correct these errors.

Claim Rejections – 35 U.S.C. § 112

Claims 1-16 stand rejected to under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicants regard as the invention. In particular, Claim 1 recites “beating member” which should read “heating member.” Claim 3 refers to “a cylindrical” rather than a should read “cylindrical shape.” Claim 6 recites the word “rater” instead of “rather.” Claim 8 refers to “in de top” rather than “in the top.” Claim 6 recites the limitations “large diameter” and “small

diameter” without antecedent basis. In response, the Applicants have amended Claims 1, 3, 6, and 8 to correct these errors.

Claim Rejections – 35 U.S.C. § 102

Claims 1-3, 7, and 15 stand rejected under 35 U.S.C § 102(b) as being anticipated by Fukui (U.S. Patent No. 5,002,928; “Fukui”). Claims 4-6 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Fukui in view of Voll, et al. (U.S. Patent No. 4,439,401; “Voll”). Finally, Claims 8-14 and 16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Fukui in view of McMillin, et al. (U.S. Patent No. 6,013,155; “McMillin”).

Independent Claim 1 recites “an apparatus for forming a thin film.” The apparatus comprises:

- a reaction chamber having a top portion, a sidewall portion and a bottom portion;
- a gas injector penetrating the top portion and letting a source element pass therethrough;
- a distributor connected to the gas injector, wherein a plurality of injection holes are formed in the distributor and the source element is injected through the plurality of injection holes; and
- a substrate heating member positioned in a reaction space defined by the top, bottom and sidewall portions of the reaction chamber, and arranged below the distributor.

To anticipate Claim 1, the Office Action must establish that Fukui discloses all the elements of Claim 1 as set forth therein. The Applicants respectfully submit that the Office Action fails to meet this burden.

Turning to Fig. 1 of Fukui, the Office Action asserts that the “reaction chamber” of Claim 1 reads upon “fence 14,” the “gas injector” reads upon “gas supplying path 12,” the “distributor”

reads upon “hollow needle valve holder 7” and the “substraight heating member” reads upon “heater” 16. The Applicants respectfully disagree.

First, Claim 1 recites that the distributor includes a plurality of injection holes formed through the distributor and that the source element is injected through the plurality of injection holes. The Office Action equates material conduits 9, 11 and 12 of Fukui to the injection holes of the claim; yet, claim 1 specifies that a source element passes through the gas injector and is injected through the plurality of injection holes. Fukui specifies, however, that a feedstock solution is supplied into conduit 9. A separate solution is provided through conduit 11 (Column 7, lines 20-25) and a carrier gas is provided through conduit 12. Therefore, three distinct elements or compositions pass through material conduits 9, 11 and 12. In contrast, Claim 1 specifies that the source element passes through the gas injector and is dispensed through the holes of distributor. Furthermore, the Office Action asserts that material conduit 12 acts as both a gas injector and one of the plurality of holes of the distributor, which is not possible.

The Office Action also equates “needle valve holder 7” to the distributor of the claims, yet needle valve holder 7 is utilized to slidably mate with needle valve 6 (Column 4, lines 35-40). Needle valve holder 7 is not a distributor. No substance emanates from needle valve holder 7. Rather, atomized fine particles are sprayed from nozzle 3a (Column 4, lines 61-65). Needle valve holder 7 simply mates with needle valve 6. Needle valve 6 then blocks path 10 and prevents the entry of feedstock into nozzle 3a. Accordingly, the Applicants respectfully submit that Claim 1 is not anticipated by Fukui because Fukui does not disclose a distributor as set forth in Claim 1.

The remaining claims are dependent either directly or indirectly on Claim 1 because dependent claims include the limitations of their base claim and any intervening claims. The Applicants respectfully submit that the remaining claims are allowable for the same reasons as given with respect to Claim 1.

Respectfully submitted,

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